

Description of a New Genus of Entedoninae (Hymenoptera: Eulophidae) from the Neotropical Region, Including Three New Species

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Abstract.—*Acanthala* gen.n. including three new species, *albiclava*, *plaumanni*, *pubipennis*, of the subfamily Entedoninae (Hymenoptera: Eulophidae) is described from the Neotropical Region (Belize, Brazil and Costa Rica). *Acanthala* is unique among Eulophidae by having the forewing with a row of strong setae on the dorsal surface of the marginal vein. The three species are known only from the female sex and nothing is known about their biology.

The Eulophidae has a worldwide distribution and is one of the largest families of Chalcidoidea. The knowledge of the group is unevenly distributed, with a strong displacement towards the northern hemisphere, although the group is expected to be more species rich in tropical areas. Estimates of the eulophid fauna in the New World tropics corroborates this (e.g. Gaston *et al.* 1996, LaSalle and Schauff 1995), but very little is known about the eulophid fauna of this region.

To increase our knowledge of eulophids in general, and of the eulophid fauna in the Neotropical region in particular, a new genus with unique morphological features is described below. The descriptions of three new species belonging to the new genus are also included. Unfortunately information regarding the biology is not yet known.

Acronyms of museums used in the text are as follows: BMNH: The Natural History Museum, London; CNC: Canadian National Collections of Insects and Arachnids, Ottawa; INBio: Instituto Nacional de Biodiversidad, Santo Domingo, Costa Rica; LUZM: Lund University Zoology Museum, Sweden; MIUCR: Museo de Insectos, Universidad de Costa Rica; USNM: United States Museum of Natural History, Washington, D.C.

Acanthala Hansson, new genus

Type species.—*Acanthala pubipennis* Hansson, new species.

Diagnosis.—Dorsal surface of marginal vein with a row of strong setae (Figs. 1, 8); eyes hairy (Figs. 1, 6, 7); mandibles with a single tooth at apex (Fig. 7); frontal cross-groove incomplete, not reaching eyes (Fig. 6), or missing (Fig. 7); pedicel conspicuously hairy on dorsal surface (Figs. 2–4); mesoscutum and scutellum with small-meshed and strong reticulation (Fig. 1), hence dull.

Description.—Flagellum with sensilla ampullacea short and symmetric, present on all segments. Antenna with 2–3 anelli. Mandibles with a single tooth at apex. Clypeus weakly delimited laterally, but not delimited dorsally. Antennal scrobes join on frontal cross-groove (or cross-groove missing). Frontal cross-groove V-shaped, not reaching eyes, or missing. Eyes hairy. Occiput with a weak median groove in upper part, close to occipital margin (*plaumanni*, *pubipennis*), or median groove missing (*albiclava*). Pronotum well developed and clearly visible in dorsal view, without transverse carina. Midlobe of mesoscutum with two pair of strong setae; notauli not visible (*plaumanni*, *pubipen-*

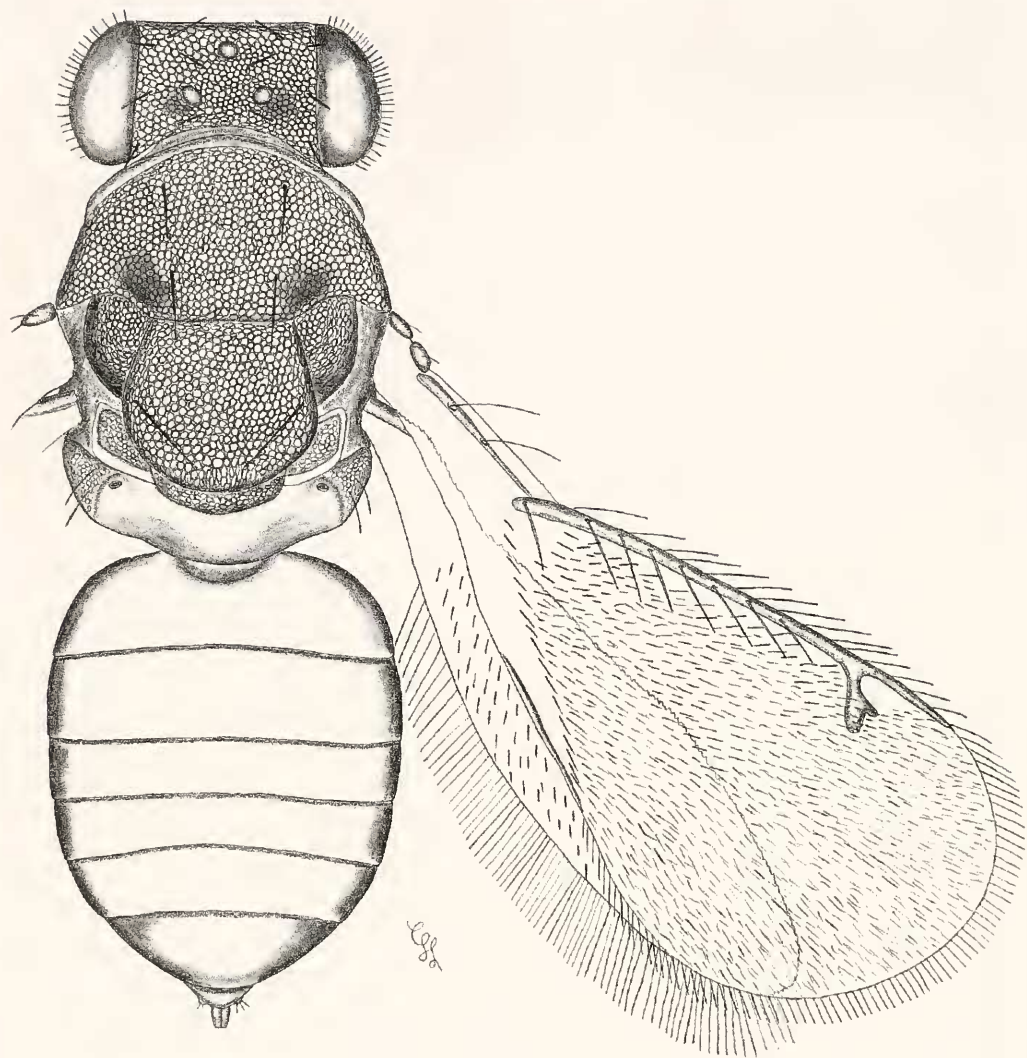


Fig. 1. *Acanthala pubipennis* habitus.

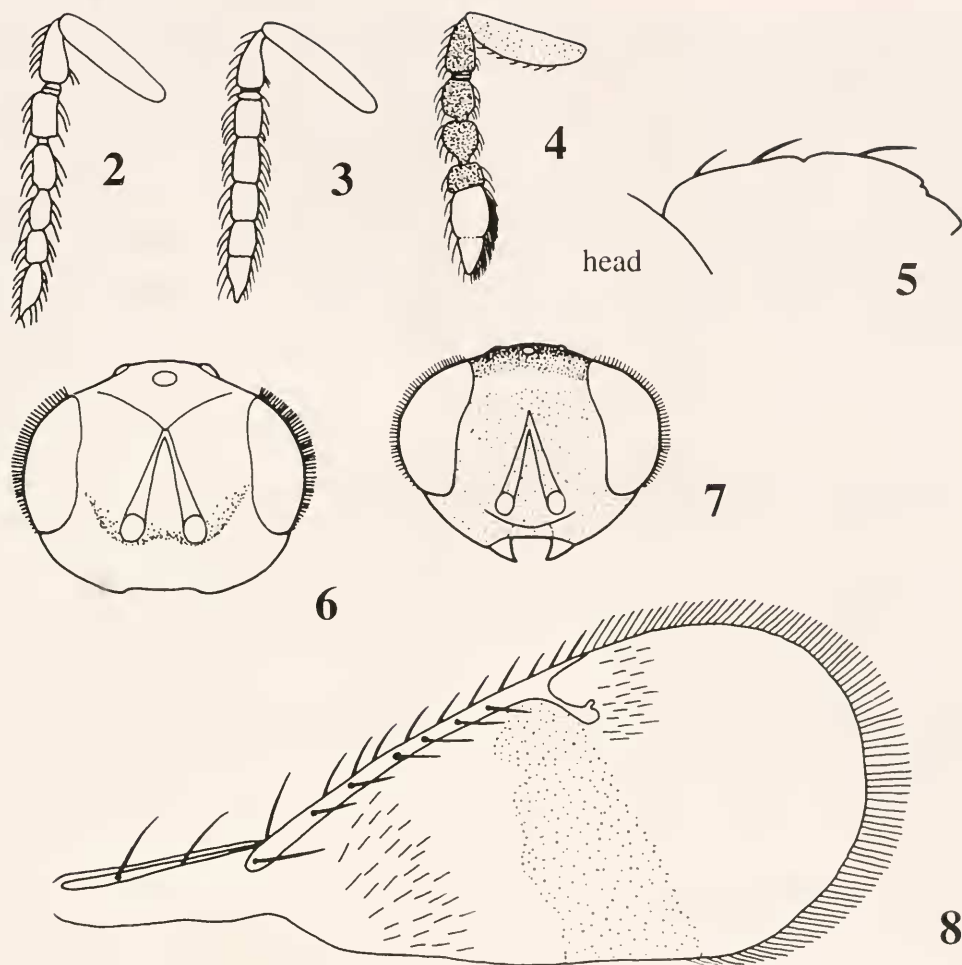
nis), or indicated in anterior 1/2 (*albiclava*). Scutellum with one pair of strong setae, situated at equal distance from anterior and posterior margins of scutellum (*pubipennis*) or closer to anterior margin (*albiclava*, *plaumanni*). Transepimeral sulcus (i.e. the sulcus separating upper and lower mesepimeron) almost straight (*pubipennis*, *albiclava*) or curved (*plaumanni*). Dorsellum visible in dorsal view. Propodeal callus with two setae. Forewing rounded; costal cell narrow; postmarginal vein $0.8-1.6\times$ as

long as stigmal vein; speculum open (*albiclava*, *plaumanni*) or closed (*pubipennis*) below; radial cell bare, without stigmal hairlines. Petiole short, hardly visible in dorsal view, and transverse.

Biology.—Not known.

Distribution.—Neotropical region (Belize, Brazil, Costa Rica).

Etymology.—Named after the row of strong spinelike setae on dorsal surface of marginal vein: *acanth-ala* = spiny wing. The gender is regarded as feminine.



Figs. 2–8. *Acanthala* spp. females. 2–4, antenna in lateral view: 2, *A. pubipennis*; 3, *A. plaumanni*; 4, *A. albiclava*. 5, thoracic dorsum in lateral view of *A. pubipennis*. 6–7, head in frontal view: 6, *A. pubipennis*; 7, *A. albiclava*. 8, forewing of *A. albiclava*.

Discussion.—The dorsal row of setae on the marginal vein is a unique character state for *Acanthala* within the Eulophidae, and hence a strong apomorphy. The mandibles with a single apical tooth is also unique to *Acanthala*. A similar character state is present in some species of *Paracrias* Ashmead, but different from *Acanthala* since in *Paracrias* there is a single large tooth and a small second tooth dorsally (Fig. 14 in Schauff 1985). Another apomorphy present in *Acanthala* is the incomplete or missing frontal cross-groove. However, this apomorphy is present in

several entedonine genera, e.g. in some species of *Chrysocharis* Förster, in most species of *Entedon* Dalman, in *Entedononecremnus* Girault and *Eprhopalotus* Girault. The occurrence among genera not otherwise shown to be closely related (e.g. Schauff 1991, LaSalle & Schauff 1994) does not indicate a high information value with regard to relationship.

The dorsal row of strong setae on marginal vein and the dense and strong but still fine reticulation on vertex and thoracic dorsum makes *Acanthala* easily recognizable, habitually not resembling any

other entedonine genus from the Neotropical region.

In Boucek (1988) *Acanthala* runs either to *Chrysocharis* (couplet 149), or to *Chrysotomyia* (couplet 153). In Schauff et al. (1997) *Acanthala* runs either to couplet 126 (*Chrysocharis* or *Grahamia*) or (with some difficulties, due to the fact that *Acanthala* does not possess the complete combination of characters presented in the couplets) to either *Asecodes* (couplet 132) or to

Neochrysocharis (couplet 134). However, the row of strong setae on dorsal surface of marginal vein makes *Acanthala* easy to separate from above mentioned genera, and from any other entedonine genera. Note: the first character used under couplet 134 in Schauff et al. (1997), the shape of the transepimeral sulcus has been confused: *Closterocerus* has a strongly arched sulcus while *Neochrysocharis* has a weakly curved or straight sulcus! (Hansson 1995).

KEY TO FEMALES OF ACANTHALA

1. Predominantly yellowish-brown nonmetallic species; antenna with a distinct antennal clava (Fig. 4), clava white and remaining flagellum brown; frontal cross-groove missing (Fig. 7) *albiclava* new species
- Predominantly dark and \pm metallic species; antenna without distinct clava (Figs. 2, 3), flagellum completely pale brown; frontal cross-groove present medially (Fig. 6) 2
2. Forewing (Fig. 1) with comparatively dense setation, speculum closed below; flagellum narrower, e.g. flagellomeres II and III $2\times$ as long as wide, and with more distinct constrictions between flagellomeres (Fig. 2) *pubipennis* new species
- Forewing with comparatively sparse setation (as in *albiclava* (Fig. 8)), speculum open below; flagellum stouter, e.g. flagellomeres II $1.7\times$ and III $1.4\times$ as long as wide, and with less distinct constrictions between flagellomeres (Fig. 3) *plumanni* new species

Acanthala albiclava Hansson, new species

(Figs. 4, 7, 8)

Diagnosis.—Predominantly yellowish-brown nonmetallic, with only major part of vertex and upper 1/2 of occiput metallic (bluish-purple); antenna (Fig. 4): scape comparatively wide, $3.8\times$ as long as median width, yellowish-brown; pedicel and flagellomeres 1–3 brown, flagellomeres 4–5 white with ventral surface densely setose, flagellum with a distinct clava; without frontal cross-groove (Fig. 7); setae on vertex and thoracic dorsum comparatively thin, as thick as setae on marginal vein; compared to *pubipennis* (Fig. 1), forewing in *albiclava* (Fig. 8) with sparse setation (wing surface distad of speculum with same setation, Fig. 8 only shows setation below base of marginal vein and on surface just distad of postmarginal and stig-

mal veins), speculum open below (i.e. cubital hairline missing below speculum), hind margin of forewing strongly curved upwards just below base of marginal vein; anteromedian part of propodeum strongly raised into a peak; propodeum with a complete median carina that splits in two carinae in posterior part; propodeal surface reticulate.

Female.—Length of body = 0.9–1.0 mm. **Colour.** Scape yellowish-brown; pedicel and flagellomeres 1–3 brown, flagellomeres 4–5 white. Frons yellowish-brown, with a white stripe from eye to eye along upper border (Fig. 7). Vertex yellowish-brown in front of anterior ocellus, remaining vertex metallic bluish-purple. Upper 1/2 of occiput metallic bluish-purple, lower 1/2 yellowish-brown. Mesosoma, including legs, yellowish-brown. Forewing with a weak infusate stripe below stigmal vein, stripe reaches hind margin of wing.

Gaster yellowish-brown. **Head:** Antenna as in Fig. 4; with three discoid anelli. Ratios height of eye/malar space/width of mouth: 2.1/1.0/1.4. Frons with rather strong small-meshed reticulation, meshes isodiametric. Vertex dull, with strong small-meshed reticulation. Ratios distances between posterior ocelli/one posterior ocellus and eye/posterior ocelli and occipital margin: 2.0/1.0/1.0. Occiput without a weak median groove in upper part; occipital margin rounded. Ratio width of head/width of thorax (measured across mesoscutum, just in front of base of forewing) = 1.2. **Mesosoma:** Mesoscutum and scutellum dull, with rather strong small-meshed reticulation, meshes on mesoscutum isodiametric, on scutellum slightly elongate. Dorsellum concave and strongly reticulate with small meshes. Forewing speculum open below; ratio length of postmarginal vein/length of stigmal vein = 0.8; ratios length of wing (measured from base of marginal vein to the point along outer margin of forewing farthest away from base of marginal vein)/length of marginal vein/height of wing: 1.9/1.0/1.0. Anteromedian part of propodeum strongly raised into a peak, with a complete median carina that splits in two carinae in posterior part; propodeal surface reticulate with small meshes. **Metasoma:** Gaster ovate; ratio length of mesosoma/length of gaster = 0.7–0.8.

Type material.—Holotype female: BRAZIL: Bahia Itabuna, 11–14.ii.1984, F. Benton (deposited in BMNH). Paratypes: Two females with same label data as holotype (1 female in BMNH, 1 female in LUZM); from same locality as holotype but collected iv.1983 (1 female, in BMNH), 2–6.v.1983 (1 female, in USNM), viii.1983 (1 female in BMNH, 1 female in LUZM).

Etymology.—Named after white antennal clava: albi-clava = white club.

***Acanthala plaumanni* Hansson, new species**
(Fig. 3)

Diagnosis.—Predominantly dark and metallic species; entire antenna brown,

scape comparatively narrow, $5.7\times$ as long as median width (Fig. 3), flagellum without distinct clava, flagellomeres stout and with less distinct constrictions between them; head shrivelled in type series, but frontal cross-groove visible at least medially; setae on vertex and thoracic dorsum comparatively strong, about twice as thick as setae on marginal vein (as in *pubipennis* (Fig. 5)); hind margin of forewing not strongly curved upwards below base of marginal vein (as in *pubipennis* (Fig. 1)); forewing with comparatively (compared to *pubipennis* (Fig. 1)) sparse setation (as in *albiclava* (Fig. 8)), speculum open below (as in *albiclava* (Fig. 8)); propodeum with weak reticulation, smooth and shiny in some places.

Female.—Length of body = 0.8 mm (in both type-specimens). **Colour:** Antenna pale brown. Frons golden-green. Vertex metallic bluish-purple. Occiput golden. Mesoscutum golden-green. Scutellum metallic purple in median 1/2, golden-green in lateral 1/4 in holotype; paratype with entire scutellum golden-green. Propodeum golden-green. Fore and hind coxae dark and metallic, mid coxa infusate; femora infusate; tibiae and tarsi pale. Forewing weakly infusate below marginal vein, infuscation reaching to hind margin of wing. Gaster golden-purple. **Head:** Antenna as in Fig. 3; with one discoid and one slightly larger anellus. Ratios height of eye/malar space/width of mouth: 1.9/1.1/1.0. Frons with rather weak small-meshed reticulation, meshes \pm isodiametric. Vertex with weak reticulation, shiny. Ratios distances between posterior ocelli/one posterior ocellus and eye/posterior ocelli and occipital margin: 1.7/1.0/1.0. Occiput with a weak median groove in upper part, close to occipital margin; occipital margin rounded. Ratio width of head/width of thorax (measured across mesoscutum, just in front of base of forewing) = 1.0. **Mesosoma:** Mesoscutum and scutellum dull, with rather strong small-meshed reticulation, meshes isodiametric.

Dorsellum concave and reticulate. Forewing speculum open below; ratio length of postmarginal vein/length of stigmal vein = 1.4; ratios length of wing (measured from base of marginal vein to the point along outer margin of forewing farthest away from base of marginal vein)/length of marginal vein/height of wing: 2.0/1.2/1.0. Propodeum with weak reticulation, smooth and shiny in some places. **Metasoma:** Gaster ovate; ratio length of mesosoma/length of gaster = 0.9–1.0.

Type material.—Holotype female: BRAZIL: Santa Catarina, Nova Teutonia, xi.1949, F. Plaumann (deposited in BMNH). Paratype: One female from same locality as holotype but collected ix.1943 (in BMNH).

Etymology.—Named after F. Plaumann, collector of type series.

***Acanthala pubipennis* Hansson, new species**

(Figs. 1, 2, 5, 6)

Diagnosis.—Predominantly dark and metallic species; entire antenna brown, scape comparatively narrow (Fig. 2), $4.7\times$ as long as median width, flagellum without distinct clava, flagellomeres slender and with distinct constrictions between them; setae on vertex and thoracic dorsum comparatively strong, about twice as thick as setae on marginal vein (Fig. 5); frontal cross-groove present, missing only close to eyes (Fig. 6); forewing (Fig. 1) with comparatively dense setation, speculum small and closed below, cubital hairline curved upwards towards base of marginal vein; hind margin of forewing not strongly curved upwards below base of marginal vein; propodeum smooth and shiny (Fig. 1).

Female.—Length of body = 0.7–1.0 mm. **Colour:** Antenna pale brown. Frons dark with weak golden tinges. Vertex dark with weak metallic tinges. Occiput dark with metallic tinges. Mesoscutum, scutellum and propodeum dark with golden-purple tinges. Fore and hind coxae dark, mid

coxa pale; femora dark; tibiae and tarsi infusate. Forewing weakly infusate below marginal vein, infuscation reaching to hind margin of wing. Gaster golden-purplish. **Head:** Antenna as in Fig. 2; with two discoid anelli. Ratios height of eye/malar space/width of mouth: 1.6/1.0/1.0. Frons with rather weak small-meshed reticulation, meshes transverse. Vertex dull, with strong small-meshed reticulation. Ratios distances between posterior ocelli/one posterior ocellus and eye/posterior ocelli and occipital margin: 2.0/1.7/1.0. Occiput with a weak median groove in upper part, close to occipital margin; occipital margin rounded. Ratio width of head/width of thorax (measured across mesoscutum, just in front of base of forewing) = 0.9. **Mesosoma:** Mesoscutum and scutellum dull, with rather strong small-meshed reticulation, meshes isodiametric. Dorsellum convex and reticulate with small meshes. Forewing speculum small and closed below, cubital hairline curved upwards towards base of marginal vein; ratio length of postmarginal vein/length of stigmal vein = 1.6; ratios length of wing (measured from base of marginal vein to the point along outer margin of forewing farthest away from base of marginal vein)/length of marginal vein/height of wing: 1.8/1.1/1.0. Propodeum smooth and shiny; propodeal callus with small-meshed reticulation. **Metasoma:** Gaster ovate; ratio length of mesosoma/length of gaster = 0.8–1.0.

Type material.—Holotype female: BELIZE: Las Cuevas, ix.1995, T. King & A. Howe (deposited in BMNH). Paratypes: Following from same locality as holotype but collected iv.1995 (1 female, in LUZM), vi.1995 (1 female, in BMNH); 1 female COSTA RICA: Alajuela, Peñas Blancas, 700m, ii.1987, E. Cruz (in CNC); 1 female COSTA RICA: Guanacaste, P.N. Santa Rosa, 300m, 20.xii.1986–10.i.1987, D.H. Janzen & I.D. Gauld (in BMNH); following from same locality as previous but collected 31.i–21.ii.1987 (1 female, in USNM),

16.v-6.vi.1987 (1 female, in INBio); 1 female COSTA RICA: Puntarenas, Golfo Dulce, 3km SW Rincón, 10m, vii.1991, P. Hanson (in MIUCR).

Etymology.—Named after densely setose forewing: pubi-pennis = hairy wing.

ACKNOWLEDGMENTS

I am indebted to the following persons for their aid in loan of material: C. Godoy and J.A. Ugalde (INBio), P. Hanson (MIUCR), J.T. Huber (CNC) and J.S. Noyes (BMNH). The TMR Programme (of the European Union) is hereby acknowledged for funding a stay at the NHM in 1999. I also would like to thank the Board of Trustees of the Natural History Museum in London for permitting access to NHM collections.

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